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ABSTRACT

Designed to develop creativity in young learners, this book contains interdisciplinary activities which focus on the theme of the five senses. Activity pages are provided that can serve as front and back covers of a student booklet and the suggested activities can be duplicated for insertion between the covers resulting in a booklet for each student. A teacher/parent guide is included and supplies background information, activity descriptions, materials needed, and possible answers for the activities. A variety of exercises are provided on topics such as: (1) identifying senses and sense organs; (2) recognizing optical illusions; (3) determining eye dominance; (4) deciphering a code; (5) identifying qualities of a good listener; (6) recording taste and eating patterns; (7) calculating caloric intake; (8) identifying smells; and (9) discussing personalities, feelings and sensitivity. (ML)

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YOUNG SCIENTISTS EXPLORE

The Five Senses

BOOK 4 INTERMEDIATE LEVEL

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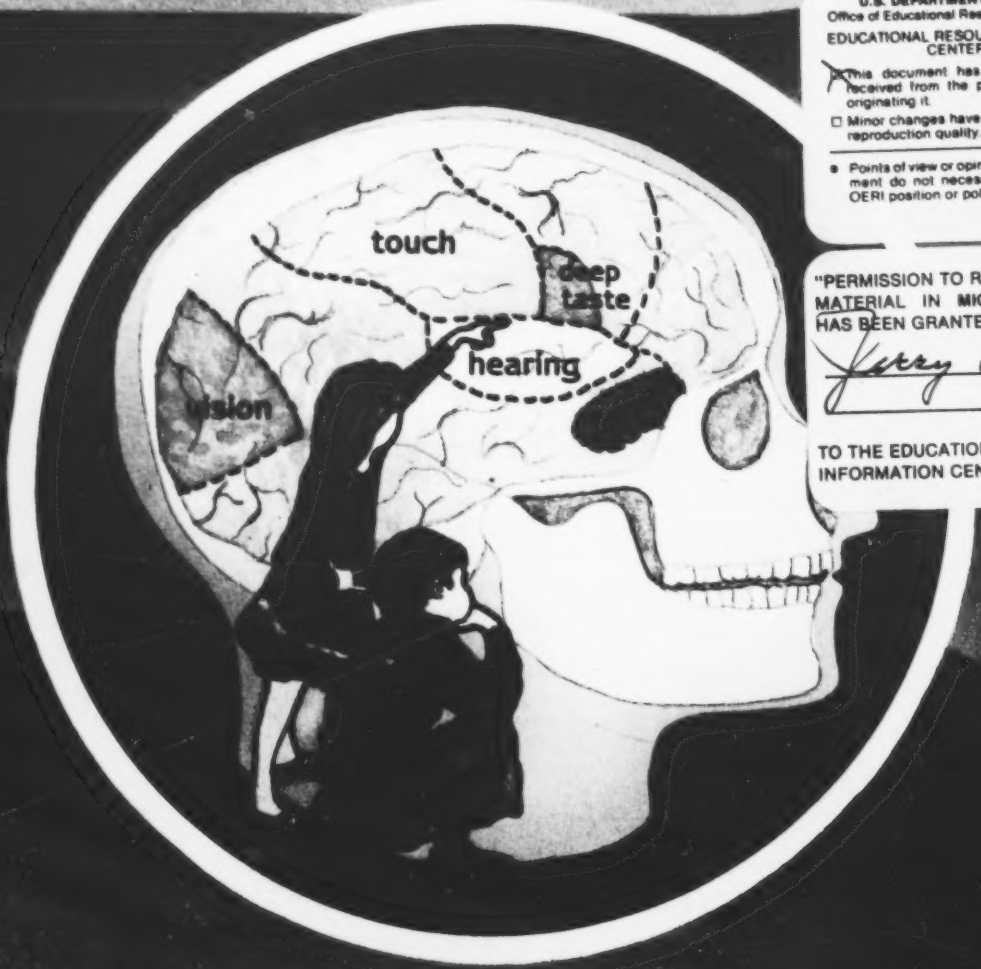

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By Jerry DeBrecht Illustrated by Charlene Czernik

YOUNG SCIENTISTS EXPLORE

THE FIVE SENSES

Book 4 -- Intermediate Level

by **Jerry DeBruin**

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PREFACE

A NOTE TO TEACHERS AND PARENTS

Dear Friends,

Thank you for the many kind comments about my previous book, *Creative, Hands-on Science Experiences* (CHOSE) published by Good Apple, Inc., in 1980.

This book, *Young Scientists Explore the Five Senses,* is written as a result of your comments and suggestions, comments that suggested a need for a handy science book or series of books that contain activity sheets which could be duplicated for students' use. *Young Scientists Explore the Five Senses* is an attempt to meet this need.

Young Scientists Explore the Five Senses is the fourth in a series of books that features science activity sheets which provide youngsters with a variety of interesting and challenging science-related experiences using puzzles, cutouts, hidden pictures, grids, charts, and seek-a-words. Youngsters are encouraged to gain firsthand experience before doing the written activities, for it is through firsthand experience that meaningful learning occurs. Emphasis throughout the book is placed on the development of creativity in the learner. It is hoped that this creativity will be nurtured both during and after the activities are done.

You as teachers and parents who use *Young Scientists Explore the Five Senses* are encouraged to make duplicating masters and transparencies from its pages. The activities are nonsequential and interdisciplinary in nature and are meant to integrate and extend existing science instruction with other academic areas. To achieve this purpose, the book contains a Teacher/Parent Guide that supplies background information including the title, major concept and materials needed for each activity plus a brief description of how to teach the activity and possible answers. When completed and mounted on single-layered cardboard and bound with tape, activity sheets 1 and 24 make up both the front and back covers of the Student Booklet. Completed student activity sheets can then be inserted between these covers or in a three-ring binder with the result being a permanent booklet for each youngster.

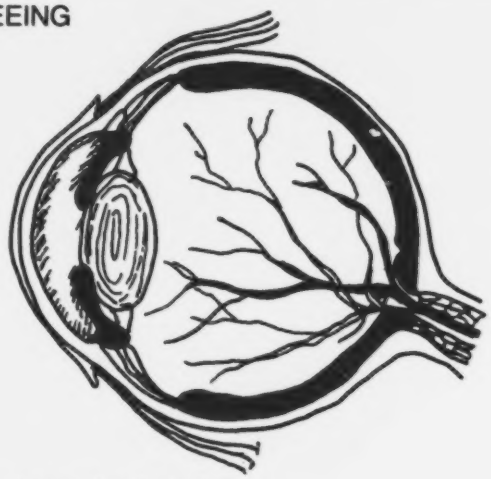
It is hoped that these activity sheets will touch many minds, hearts, and hands and that much personal growth is experienced by all who do the activities. Keep in touch. Let me know how you are doing. It is always good to hear from you. Until then, best wishes in your continued growth as a scientist and complete human being.

Sincerely,

Jerry DeBruin

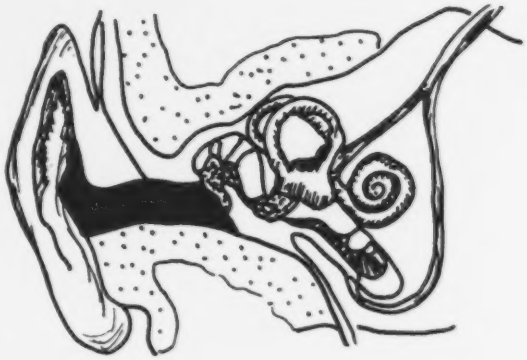
OUR SENSES AND BEYOND...

SEEING



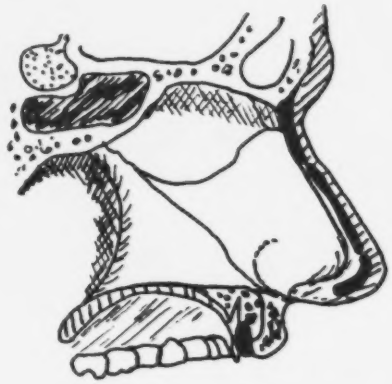
I feel great when I see _____

HEARING



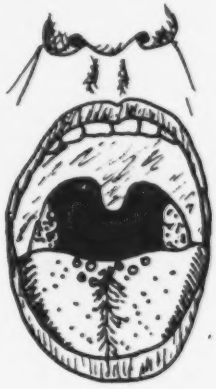
My favorite sounds are _____

SMELLING



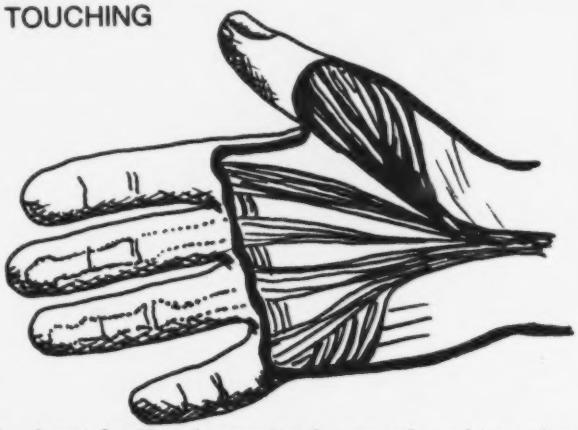
I like the smells of _____

TASTING



I like the taste of _____

TOUCHING



The best feeling I ever had was when I touched a _____

STRETCHING BEYOND

My favorite way out feeling is _____

The best feeling inside me is _____

School
Name

My Scrapbook of Senses...

Draw an optical illusion here.

Out of Sight, Out of Mind

Paste a picture of your favorite sound here. Or, write the words or score of music to your favorite song here.

Listen to Silence

Place a pleasant smell or its picture in this space.

Don't cut off your nose to spite your face.

Draw a picture of your favorite food here. Find out what it costs.

Don't bite the hand that feeds you.

Glue a sample or draw a picture of your favorite texture here. It may be rough, smooth, hard or soft.

Fear not to touch the best.

Write a story about an experience where you used all five sense organs at once. Popping popcorn may be such an experience.

Way Out!

Feeling Good: Put on a Happy Face!

Your eyes can help you feel good about yourself, others and the world around you. You feel good when you put on a happy face. Using Figure 1, stare at either black dot A or B between the happy face and the blank circle. While staring, move the paper toward your nose until the happy face moves inside the circle and makes a face. Using Figure 2, draw a pair of glasses or a mask on the face next to the black dot. Stare at dot. Move paper toward nose until glasses appear on your happy face. Try other figures like freckles in Figure 3. Move freckles on you face as before. On the back of this paper write a story about what your different faces may mean to different people. Here is one such story.

Being Different Can Be Fun

Paul, Mary and Lee are friends. They are all different from each other and like it that way. Paul wears glasses, Mary has freckles and Lee has darker skin than the others. They all feel that it's great to be different and they like it that way. They ask you, "Wouldn't it be boring if we all looked the same and liked the same things?"

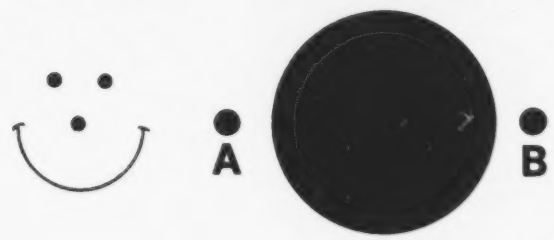


Figure 1

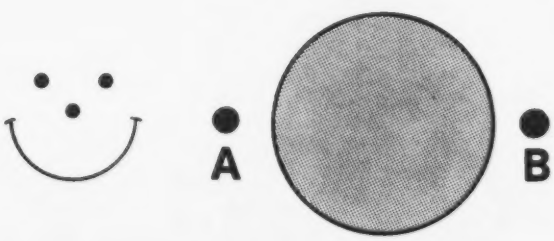


Figure 2

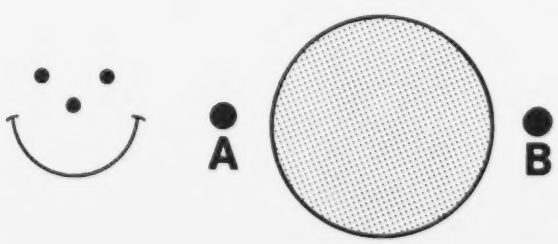


Figure 3

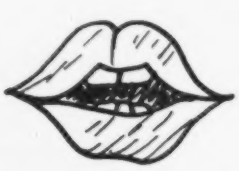
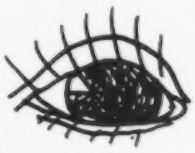
Five Senses Plus

Many people think that there are only five senses. Actually, there are fourteen *true* senses and five sense organs: (1) eye, (2) ear, (3) fingers, (4) nose (5) mouth. Cut out pictures of the five sense organs below and paste them on a paper lunch bag. Then, write the name of the following sense words on the bag that correspond to that sense organ. Choose from these fourteen sense words. Remember that words may be used more than once: (1) sound, (2) touch, (3) black and white, (4) pressure, (5) salt, (6) smell (7) bitter, (8) heat, (9) balance, (10) color, (11) sweet, (12) cold, (13) pain and (14) sour. Cut out your favorite pictures from magazines that represent the senses and glue these to your bag. Tell a friend why you chose these pictures. Then, use your bag as a puppet that tells a story about each true sense such as this one by Shelia Densmore, age 11, Lial School, Whitehouse, Ohio.

MY THIRD EYE

(The Power of Imagination)
By Sheila Densmore

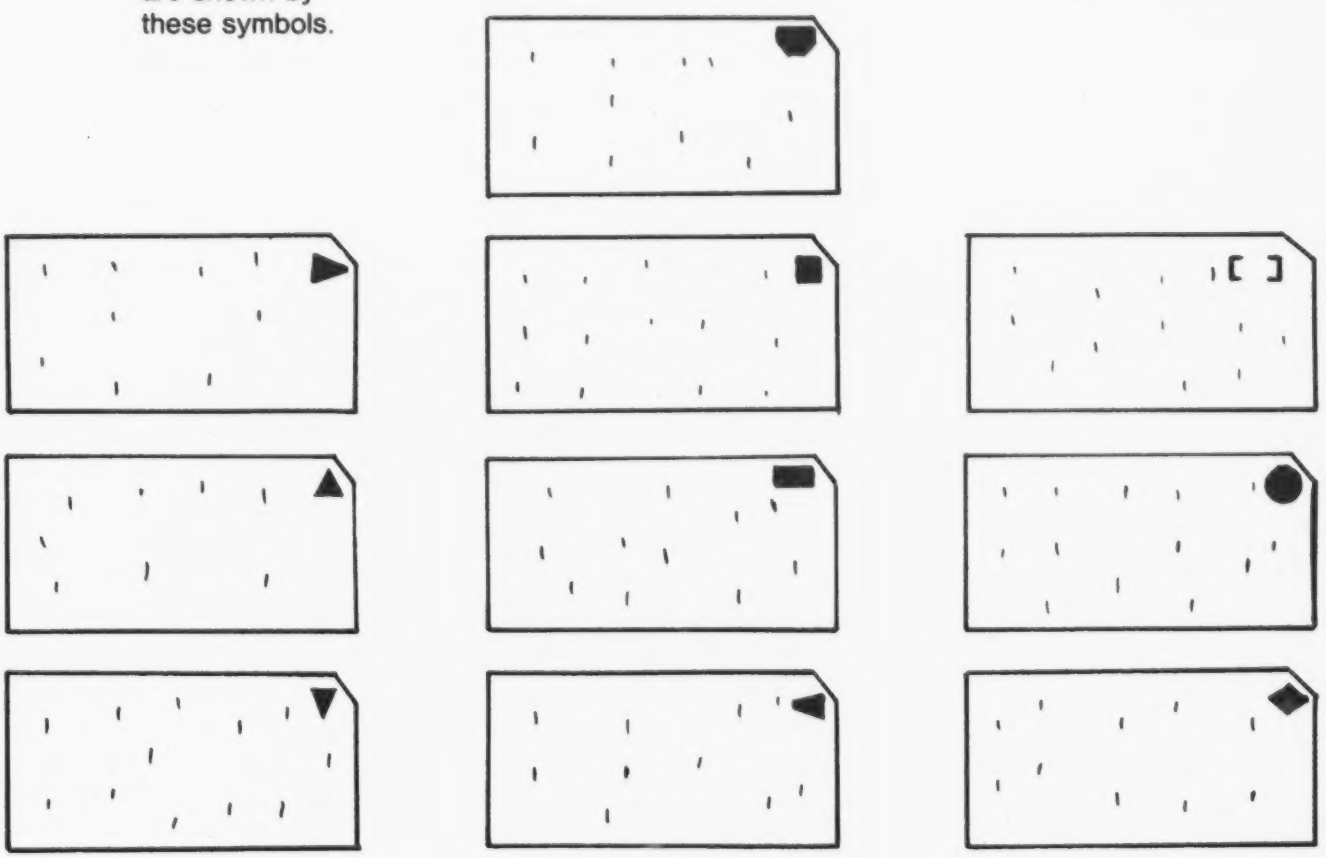
My third eye sees the hot sun.
My third eye sees all the different planets.
My third eye sees the bottom of the ocean.
My third hand can catch birds.
My third leg runs as fast as light.
My third arm reaches to the moon.
My third eye sees around the world.
My third ear hears fires crackling.
My third head thinks about stars.
My third foot runs as fast as the wind.
My third pen writes about my third.
My third stomach eats and eats.
My third brother causes problems.
My third eye sees the moon shining brightly.
My third foot takes bigger steps.
My third ear hears the sound of a soft gentle wave.
My third arm stretches high to the sky.
My sixth finger gets in the way when I write.
My second nose smells what my first nose never could.

COMPUTER SENSE

The nerves in your body act like a gigantic computer. When you prick yourself with a pin, it acts on your nerves and sends a message to your brain. You feel pain in your finger, not your brain. Drop a pebble to the floor. The sound of the pebble hitting the floor reaches your ears. Electrical impulses move along hearing nerves to your brain where they are stored in the cerebrum until later. In order for you to pick up the pebble, electrical impulses must go from your brain to muscles in your eyes that work the eye so you can see the pebble. Electrical impulses flash back to the cerebrum which recognizes the pebble. The cerebrum sends out electrical impulses along nerves to muscles which allow you to reach over and pick up the pebble. Cut out the computer cards below and rearrange them to show the correct order of events from the initial drop of the pebble to its pickup. Place the computer symbol on each card in the blanks below. The first and last ones are done for you. Then act out or draw the sequence of events that shows the dropping of the pebble to its pickup by your hand.

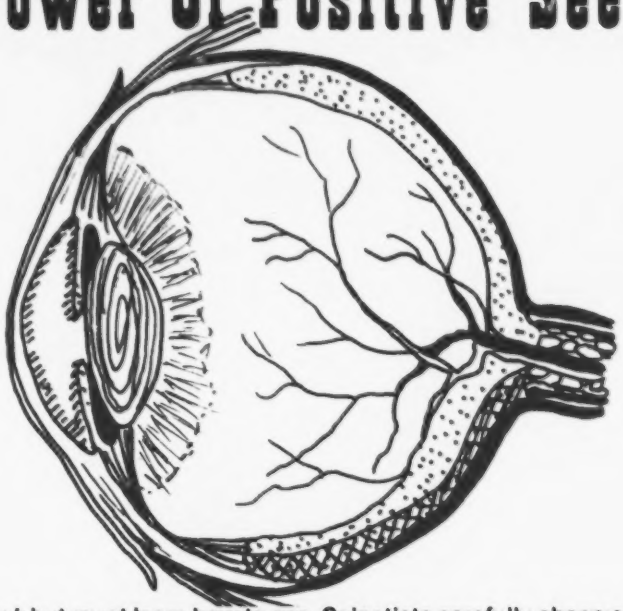
The events happen like this and are shown by these symbols.



The Power Of Positive Seeing

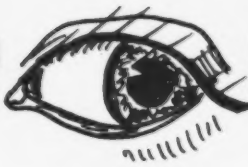
12-16 A Super Scientist
8-11 A Good Start Toward a Science Career
4-7 An Average Scientist
0-3 Begin to See Things More Carefully

Total Possible Points = 16
My Total Points = _____
My Rating = _____

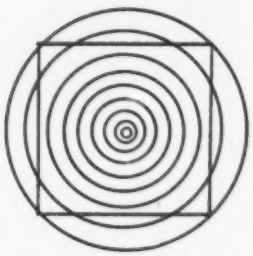


Most people can *look* but must learn how to *see*. Scientists carefully observe the color, size, shape, texture, pattern and movement of objects around them. Fill in the blanks below with the correct answer(s). Add up the total number of points for your answer. Rate yourself as a young scientist by using the scale below. Record your results in the blanks at the top of the page. Then, color the eyeball above.

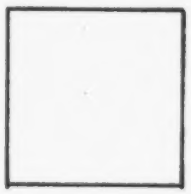
1. The three lights from top to bottom in a stoplight are colored _____, _____ and _____. (3 points)
2. You see your face _____ (right side up, upside down) when you look into the caved inside of a spoon. (1 point)
3. The letters _____ and _____ are not found on a telephone dial. (2 points)
4. Abe Lincoln faces _____ (left, right) on a penny. (1 point)
5. Water runs _____ (clockwise, counterclockwise) down a sink in the Northern Hemisphere. (1 point)
6. There are _____ (2, 4, 6, 8, 10,) sides to a stop sign. (1 point)
7. If a pencil isn't round, it usually has _____ sides. (1 point)
8. The Statue of Liberty torch is held in the _____ (left, right) hand. (1 point)
9. There are _____ (4, 5, 6) tines on a dinner fork. (1 point)
10. The symbol _____ (cents, "4," "c") is found after the numeral on most U.S. postage stamps. (1 point)
11. You flip the switch _____ (up, down) to turn on a light switch. (1 point)
12. A record turns _____ (clockwise, counterclockwise) when playing on a record player. (1 point)
13. Page one is located on the _____ (left, right) side of the book. (1 point)

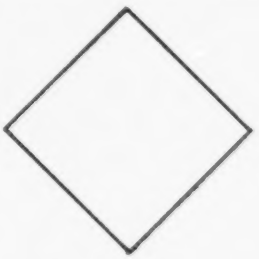
DO YOU SEE WHAT  SEE?

The eye appears to sometimes trick you into seeing something that is really not like it actually is. Below are some of these optical illusions. See if you see what your eyes see by answering the questions below. Circle Y for yes, N for no. Then, make your own book of optical illusions. Baffle your friends with these incredible designs.

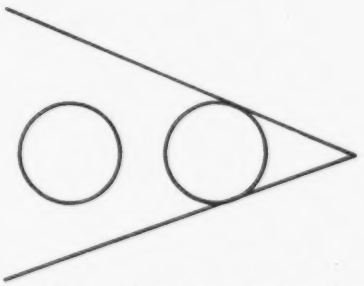


(1) Are all four sides of the square equal?
Y N

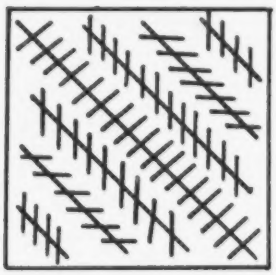




(2) Are these squares the same size? Y N

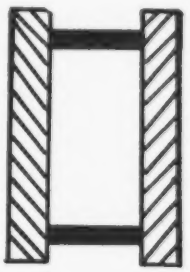


(3) Are the circles the same size?
Y N

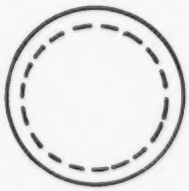


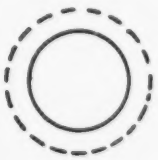
(4) Are the long diagonal lines parallel? Y N

(5) Are lines A and B the same length?
Y N



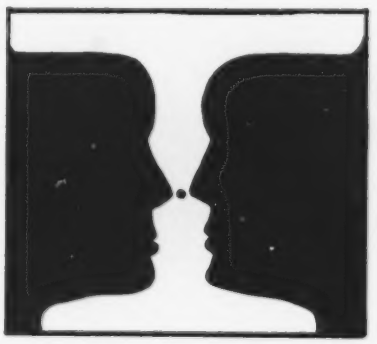
(6) Are the striped bars parallel to each other?
Y N





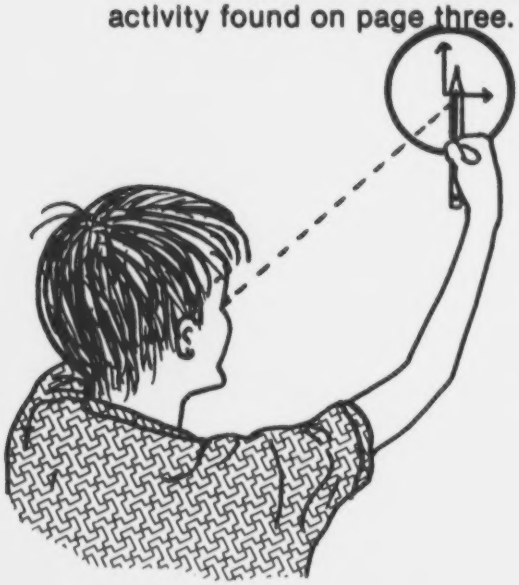
(7) The dotted line on circle A is the same size as the dotted line on circle B? Y N

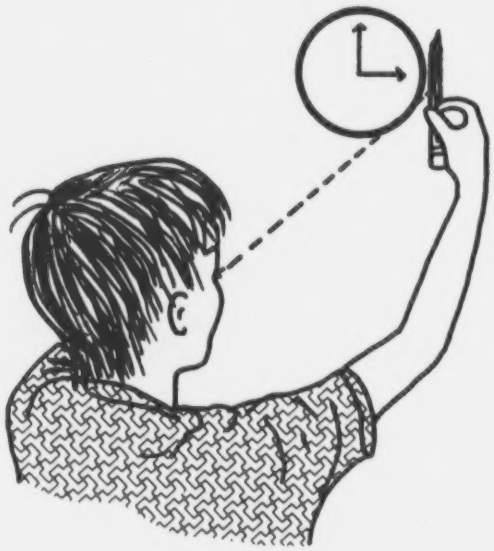
(8) Do you see a vase or two faces? Count the number of vases and two faces you see in one minute. Try this on your friends. Who sees the greatest number of first the vase, then the two faces? Keep a record of your results in your science book.



EYE CHALLENGE

Survey each person in your family, school or neighborhood to find out which one of their eyes is the stronger. With both eyes open, have them line up a pencil or finger with a clock or doorway post as shown below. Ask them to close their left eye, then open it. Do the same for the right eye. If the pencil jumps to one side when one eye is closed and then opened, it usually means that that eye is the stronger. Scientist say that this eye is dominant. Complete the chart below. Then find out if your friends are right-handed or left-handed and if handedness is related to the eye that is most dominant. Are girls more right-eye dominant than boys? Record your results in the chart below and compare these results with those from the activity found on page three.

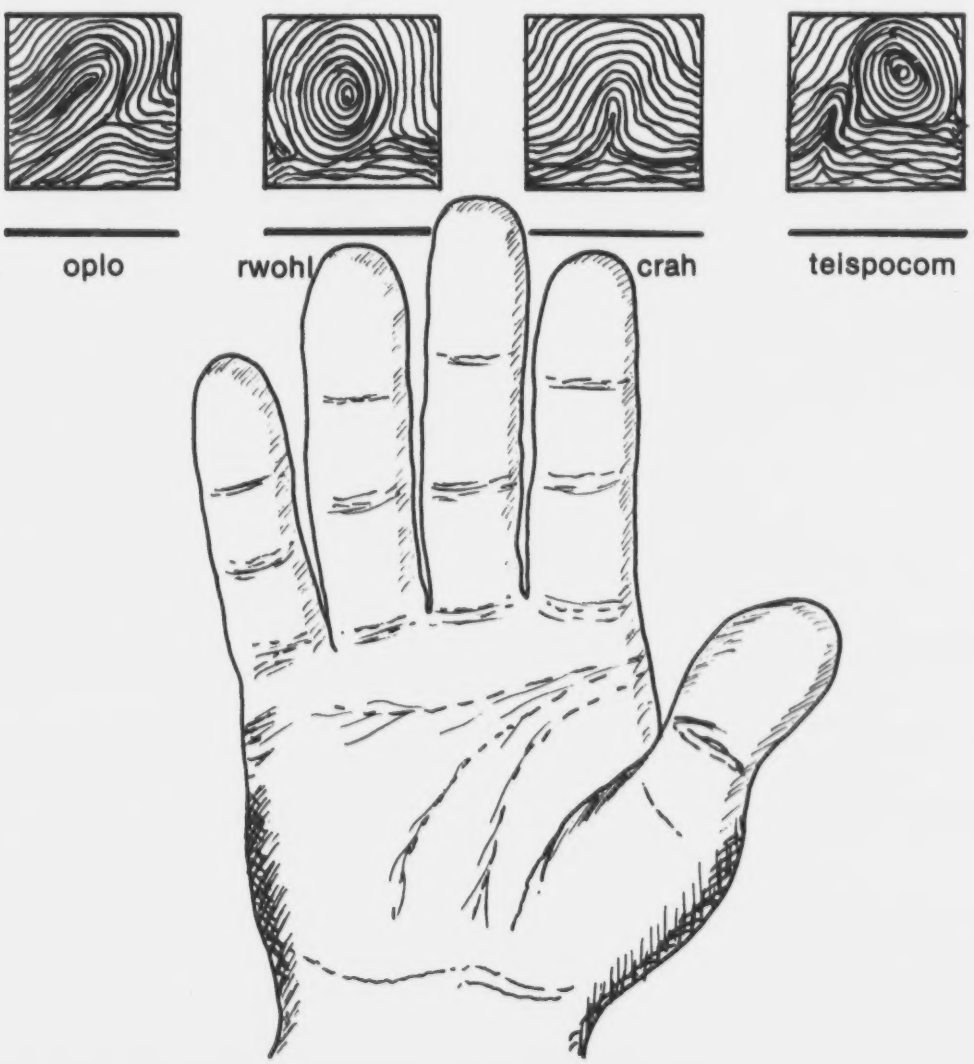




Name	Boy or Girl	Right-Eye Dominant	Left-Eye Dominant	Right-Handed	Left-Handed	Comments

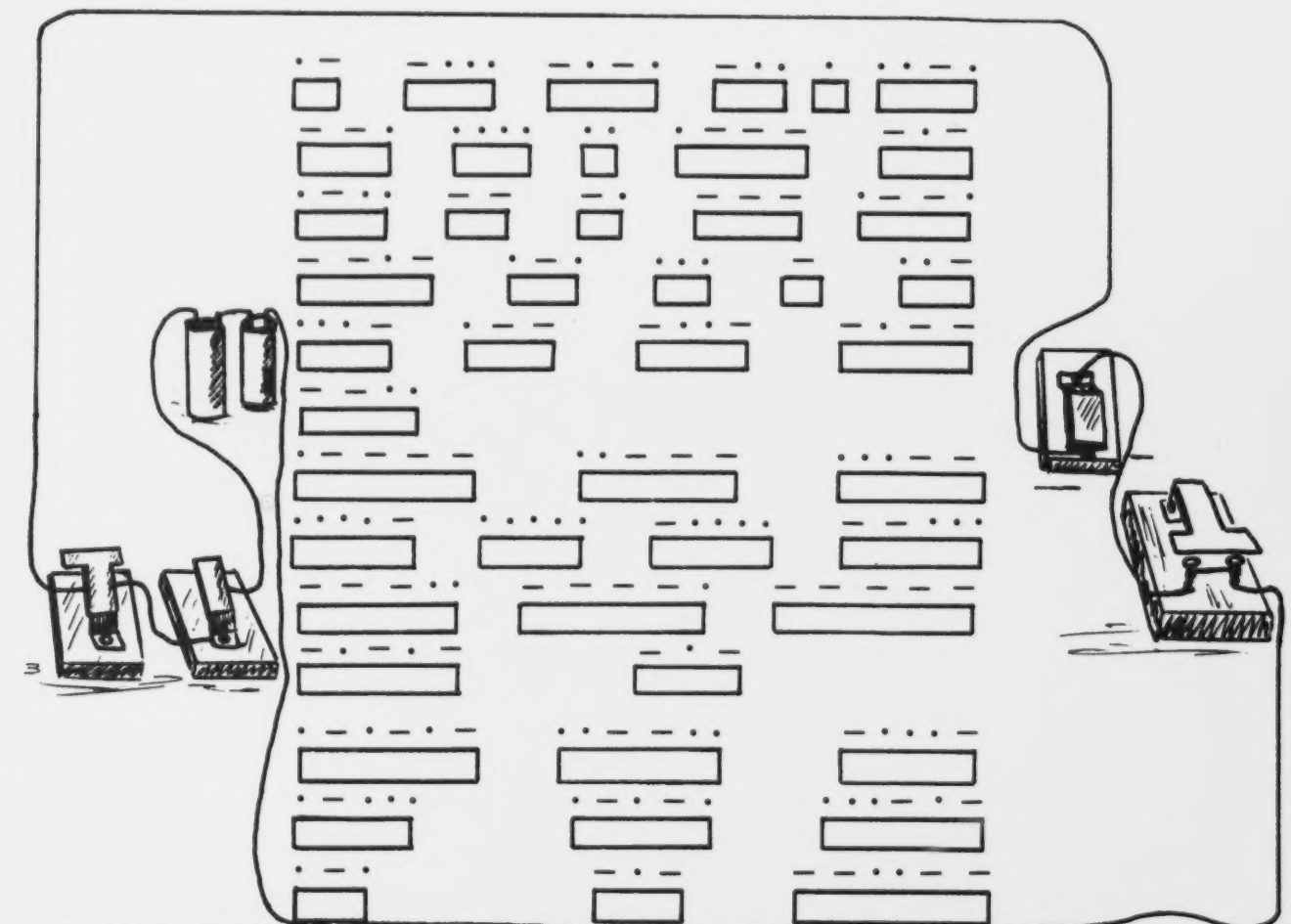
GOTCHA!

In each box below is a pattern of a fingerprint. Identify each by unscrambling the letters below each box. Write the name of the fingerprint in the blank. Then, place each finger on an ink pad and print your fingerprints on the fingers below. Which pattern is each print? Write the name of the pattern on each finger. Are your fingerprints all the same pattern? Choose some friends and do their fingerprints. Try printing an animal with your finger and thumbprint. Write a secret code that if solved would tell others about what's so special about your fingerprints. Study how mysterious crime cases are solved by using fingerprints. Write your own brief or court case history in your science book.

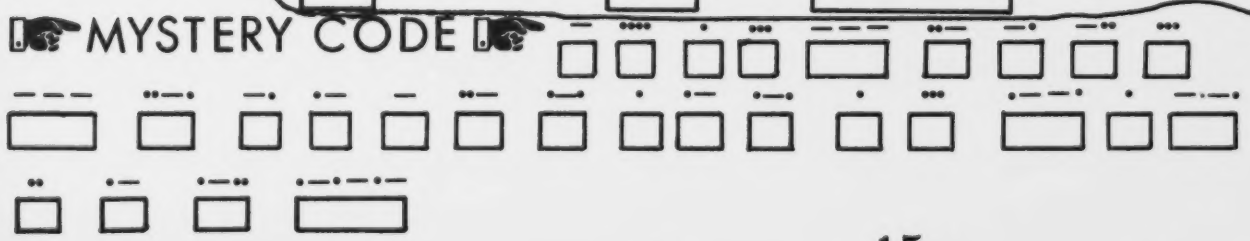


MORSE CODE

Our eyes and ears can help us send messages. Samuel Morse invented the Morse code so we could send messages over a distance by flashes of light (seeing) or beeps of sounds (hearing). Tell what letter, number or word that each of these symbols represents. Place the correct letter, number or word in the box below the symbol. Decipher the mystery code below. Then, tap out the coded mystery message to a friend or send a message by using a flashlight. Look up the word CRYPTOGRAPHY in the encyclopedia and develop a cryptogram for members of your class.



MYSTERY CODE



TIPS FOR GOOD LISTENING

Listed on the ears below are various statements about listening. Place the letter of each in the spaces below as being a quality of a good listener or a poor listener. Then figure out the code statement for each column by rearranging the letter in that column.

GOOD LISTENER

LETTERS _ _ _ _ _ _ _

CODE WORD FOR GOOD LISTENER IS

_____

POOR LISTENER

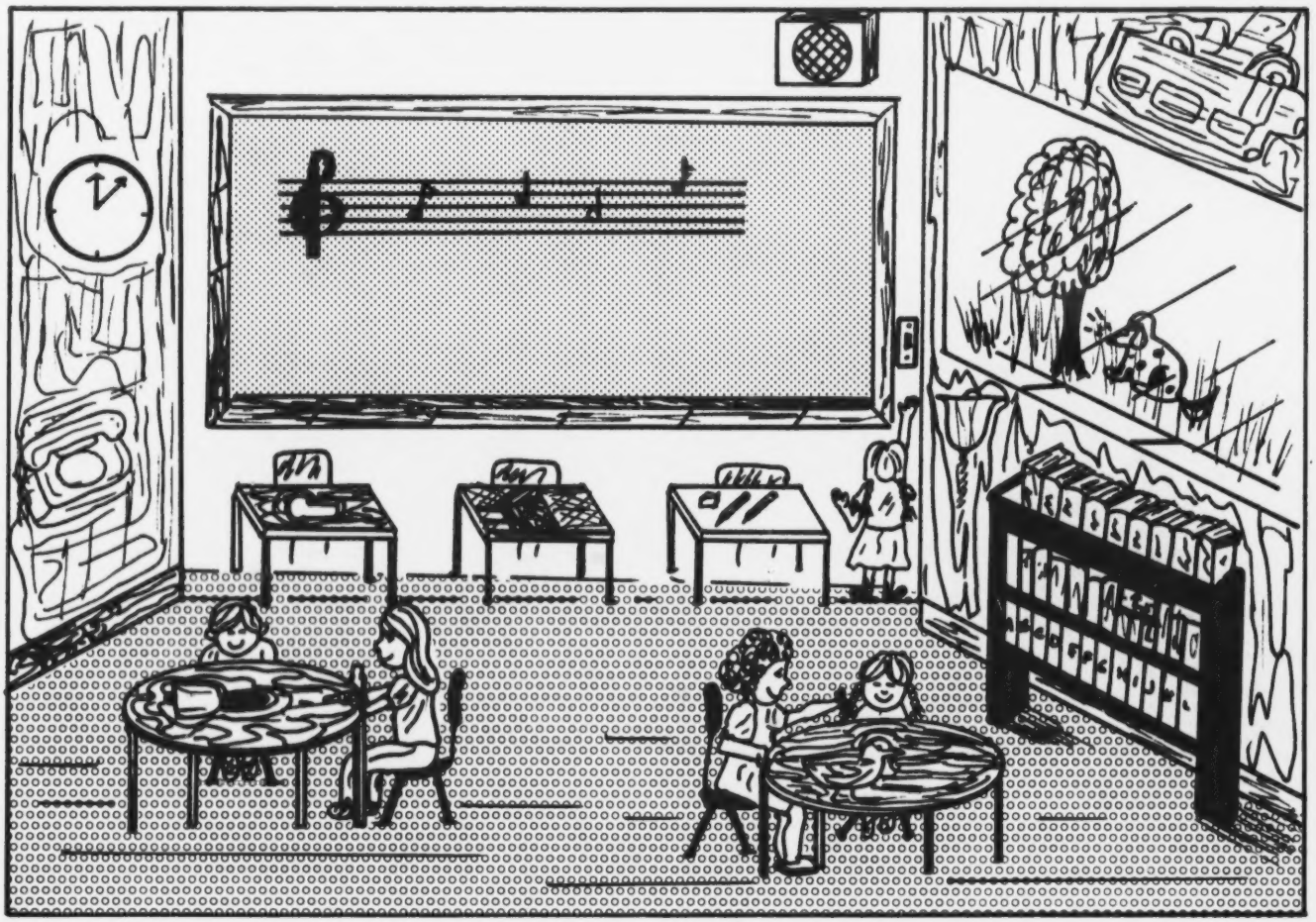
LETTERS _ _ _ _ _ _ _ _

CODE WORD FOR POOR LISTENER IS

_____

HEARING SPECIAL SOUNDS

Find the hidden objects in the scene below that produce sounds. Circle these objects. Place a ✓ in front of the corresponding word below. Place an X after each word that represents a sound that you heard today. Then, make a large chart that shows the names of sounds heard at a sports event, zoo or on a nature hike.



___ Telephone ___

___ Cricket ___

___ Alarm Clock ___

___ Bird ___

___ School Bus ___

___ School Bell ___

___ Referee's Whistle ___

___ Church Bell ___

___ Radio ___

EAR LOBES:
IN A FIX OR FREE?

Figure A

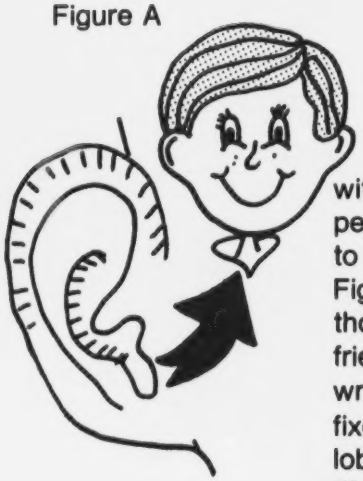
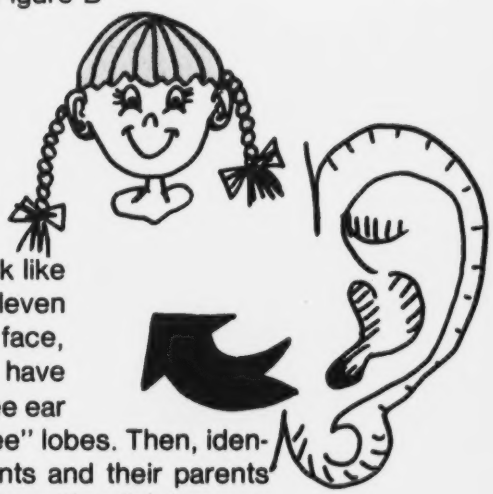
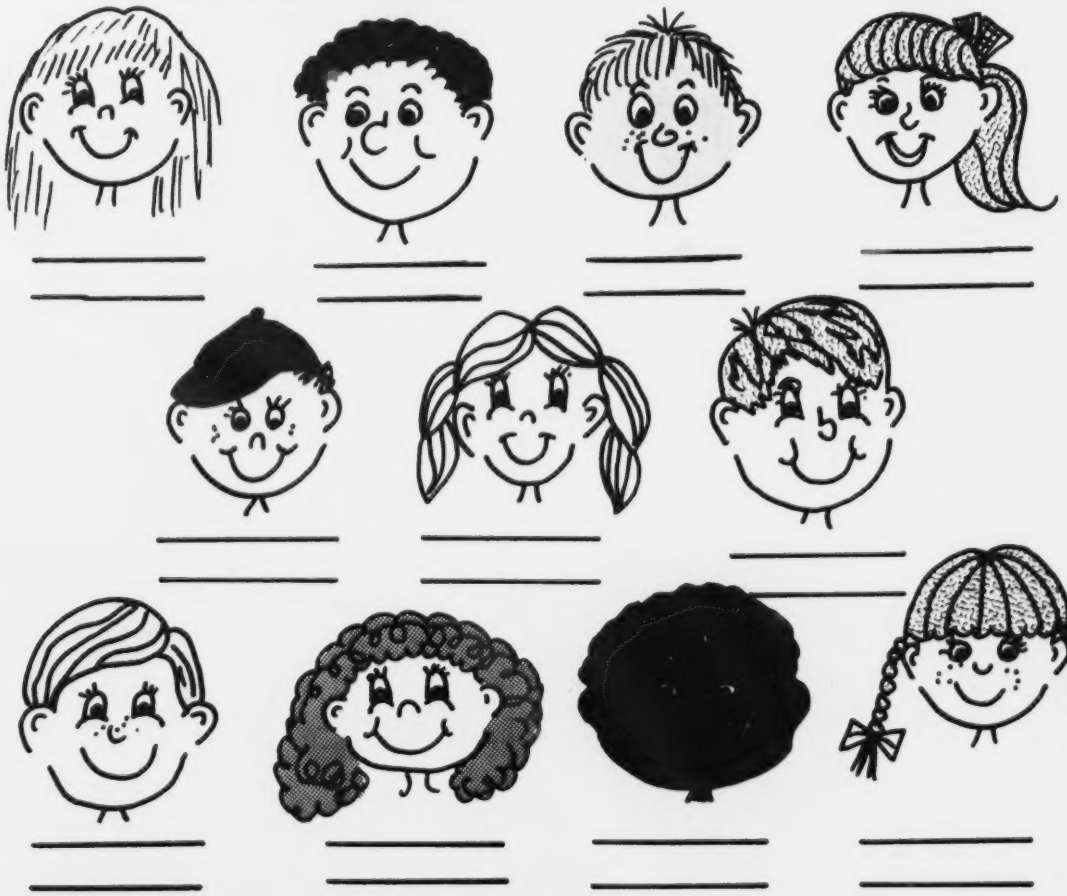


Figure B

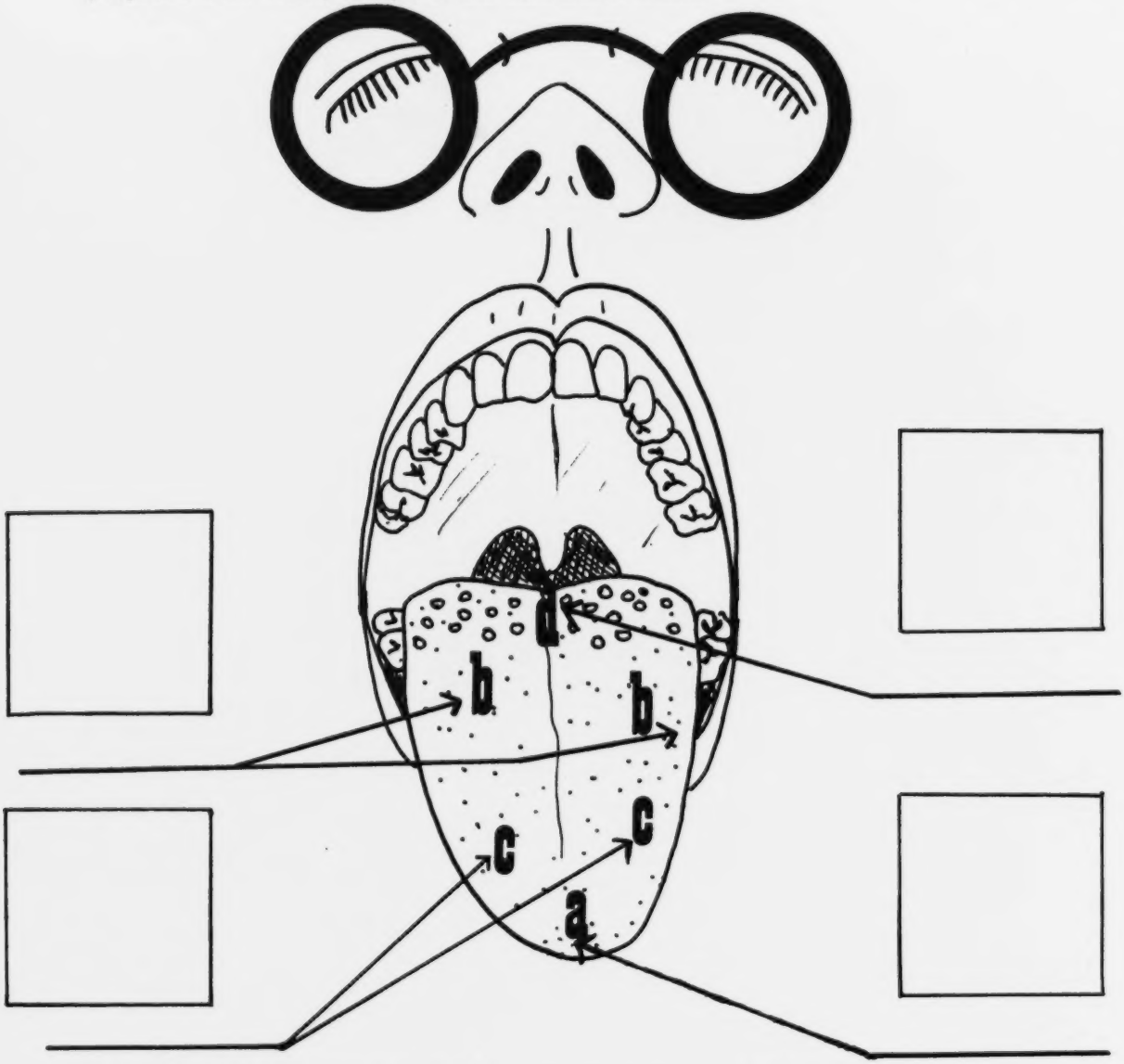


Here are pictures of faces with ears that belong to different people. Some ears are attached to the neck and look like those in Figure A while others are free and look like those in Figure B. Do a survey of eleven friends. In the first blank below each face, write the names of those people who have fixed ear lobes and those who have free ear lobes. Then, write either "fixed" or "free" lobes. Then, identify what type of lobe you, your parents and their parents have. Try to find out if either "fixed" or "free" lobes are dominant in your family. Make a record of your results in your science notebook.



TASTY TONGUE

Taste buds located on the tongue give us tastes of sweet, sour, salty and bitter. Below is a large tongue that shows the locations of different taste buds. Label each type. Color the salty taste buds red, sweet blue, sour green and bitter yellow. From a magazine, cut out a picture of a food that gives you each taste and glue it in the appropriate box. Then, complete the sentences below.



The saltiest food I ever tasted was _____ and I _____.

The sweetest food I ever tasted was _____ and I _____.

I tasted a bitter thing. It was _____ and I _____.

I tasted a sour food. It was _____ and I _____.

The most bittersweet experience in my life was when _____

_____

_____

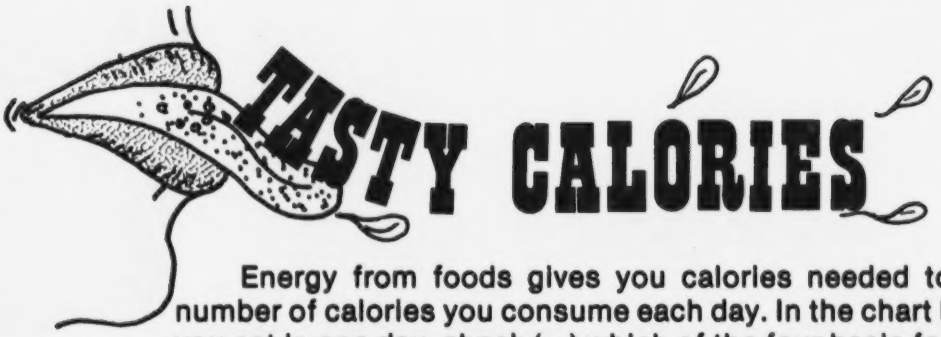
_____

TASTE THE BIG FOUR!

Below is a daily record of the four basic food groups: bread and cereals, dairy products, fruits and vegetables and meat and fish. Try to eat something from the big four groups each day. Make a ✓ in the day of the week column for each time you eat something from the big four groups. Find the total times per week that you have eaten something from each group. Place that number in the column at the right. Then plan your own weekly menu that includes choices from each of the four food groups. On a separate paper illustrate your daily menu by drawing pictures of foods taken from each of the four basic food groups. Make a place mat using the information found on our daily menu.

Group	Recommended Serving Per Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Total Times Per Week
1 BREAD AND CEREALS	4								
2 DAIRY PRODUCTS	3								
3 FRUITS AND VEGETABLES	4								
4 MEAT AND FISH	2								

MY NAME IS_____



TASTY CALORIES

Energy from foods gives you calories needed to live. Find out the number of calories you consume each day. In the chart below, list the foods you eat in one day, check (✓) which of the four basic food groups the foods come from and figure the total number of calories consumed in one day. Find out an average number of calories consumed by a person your age. Are you average, over, or under the recommended number of calories for a person your age?

Food	Food Group	Serving Size	Calories	Totals
Breakfast				Breakfast =
Lunch				Lunch =
Dinner				Dinner =
Snacks				Snacks =

Total Calories
Today = _____

_____ I am over the recommended number of calories per day.

_____ I am under the recommended number of calories per day.

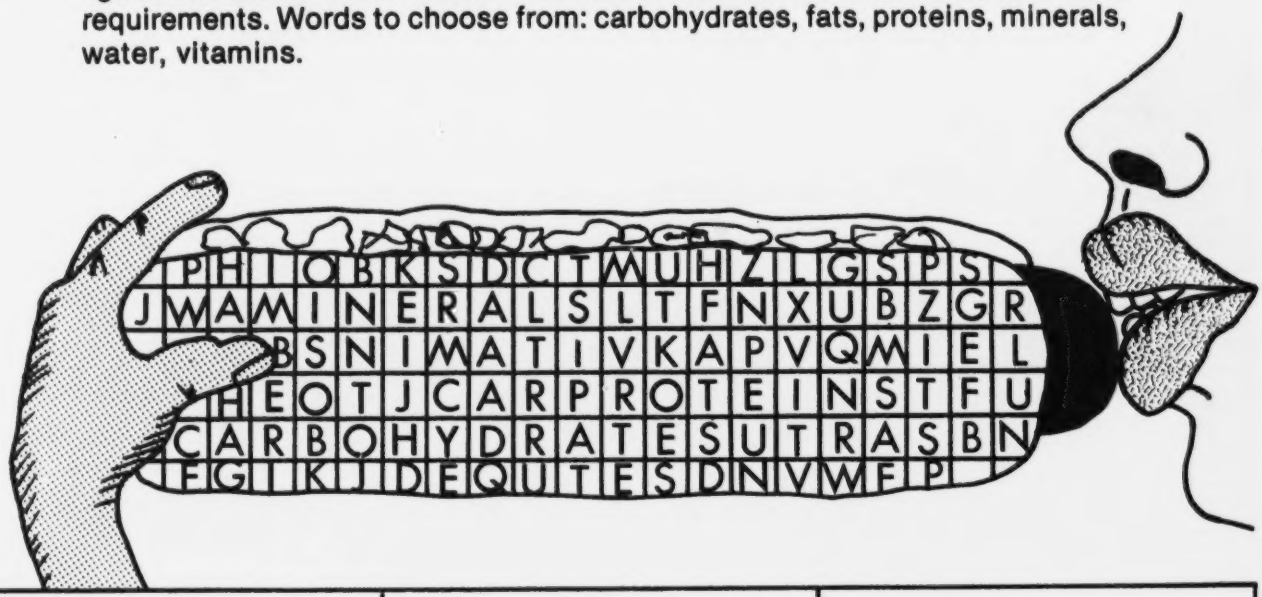
_____ I am at the recommended number of calories per day.

My name is _____. Today's date is _____.

I feel _____.

NUTRIENT NUMBERS

There are six major elements called nutrients found in all foods. These six are listed below. Find and circle these words in the puzzle. Then, look at the labels on twelve foods found in your home. Select one nutrient found in each food and find its percent or weight. Study whether you are eating foods that include a high percentage of the nutrient found in the food in order to meet recommended daily nutritional requirements. Words to choose from: carbohydrates, fats, proteins, minerals, water, vitamins.

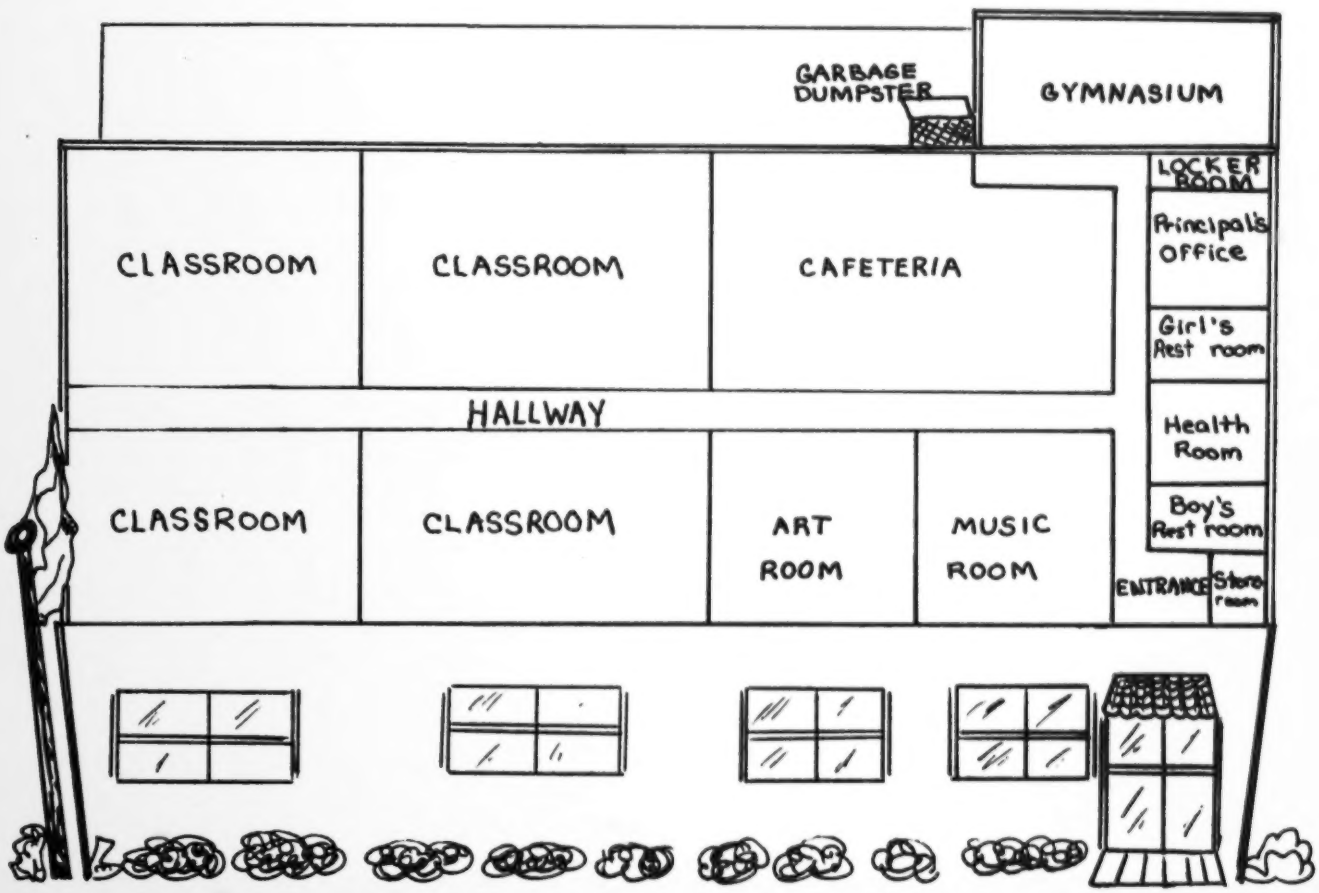


Food:_____ Nutrient (1) _____ % or grams of nutrient _____	Food:_____ Nutrient (2) _____ % or grams of nutrient _____	Food: _____ Nutrient: (3) _____ % or grams of nutrient _____
Food: _____ Nutrient (4) _____ % or grams of nutrient _____	Food: _____ Nutrient (5) _____ % or grams of nutrient _____	Food: _____ Nutrient (6) _____ % or grams of nutrient _____
Food: _____ Nutrient (7) _____ % or grams of nutrient _____	Food: _____ Nutrient (8) _____ % or grams of nutrient _____	Food: _____ Nutrient (9) _____ % or grams of nutrient _____
Food: _____ Nutrient (10) _____ % or grams of nutrient _____	Food: _____ Nutrient (11) _____ % or grams of nutrient _____	Food: _____ Nutrient (12) _____ % or grams of nutrient _____

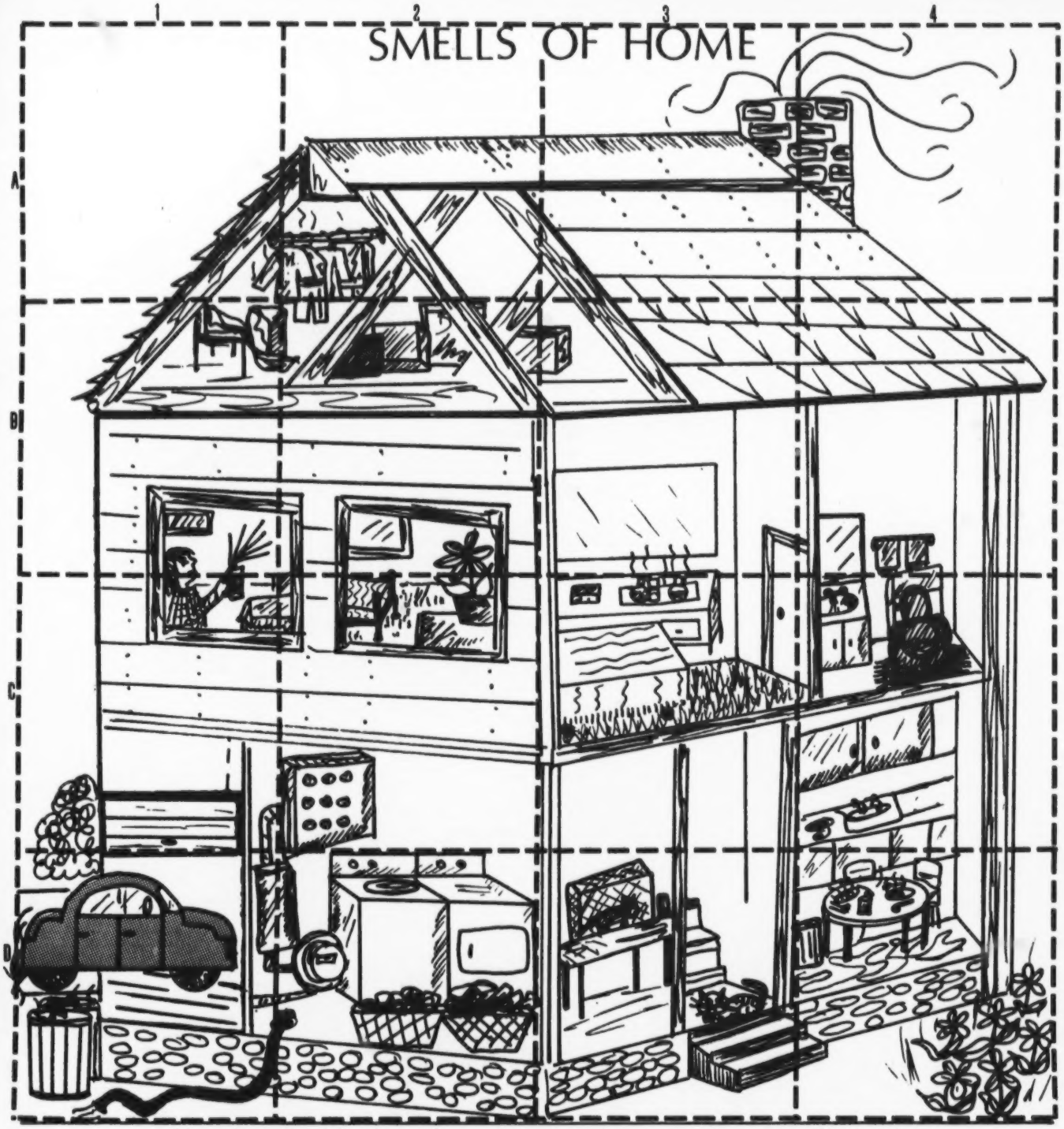
THE HALL OF SMELLS

Below is an inside view of your school that shows various areas located in the building. Take a walk through the halls of your school. Find the following objects that have interesting smells. In the picture below, draw a picture in the room where that object was found. On the chart, name the smell and the room where it was found. Then, X the face that best shows your reaction to the smell. The first one is done for you.

OBJECT	Describe Smell	Where Found	My Reaction
PIZZA	Delicious	Cafeteria	
FLOWER			
COFFEE			
TRASH CAN			
APPLE			
OTHER			



SMELLS OF HOME



Here is an inside view of your home and surrounding area. Find objects that give off particular smells. Circle each. On the back of this paper, make a chart like the one below. Identify the grid area where these objects are found (for example, A2), the type of smell given off and draw a face that shows your reaction to the smell--pleasant, so-so, not so pleasant. Then write a joke or riddle about the smells found in your home.

GRID AREA	DESCRIBE SMELL	PLEASANT	SO-SO	NOT SO PLEASANT
		☺	☺	☹

ALMANAC OF SMELLS

Scientists have identified and classified more than 17,000 smells in their *Almanac of Smells*. Below is your Almanac of Smells. Keep a record of the smells that you experience in your everyday life. Place a check mark (✓) in the blank when you smell that smell. Then, place an X in the blank that shows your reaction to the smell either agreeable, disagreeable or somewhere in between. Write the word that best classifies the smell in the column at the right. These can be either (1) Sweet Flower, (2) Fruit, (3) Spicy, (4) Musk, (5) Strong, (6) Foul and (7) Nauseous. The first one is done for you. Don't forget to add up the total number of points to obtain your Smell Index. Then, design a book jacket for your almanac and write an advertisement that would sell your almanac to your classmates.

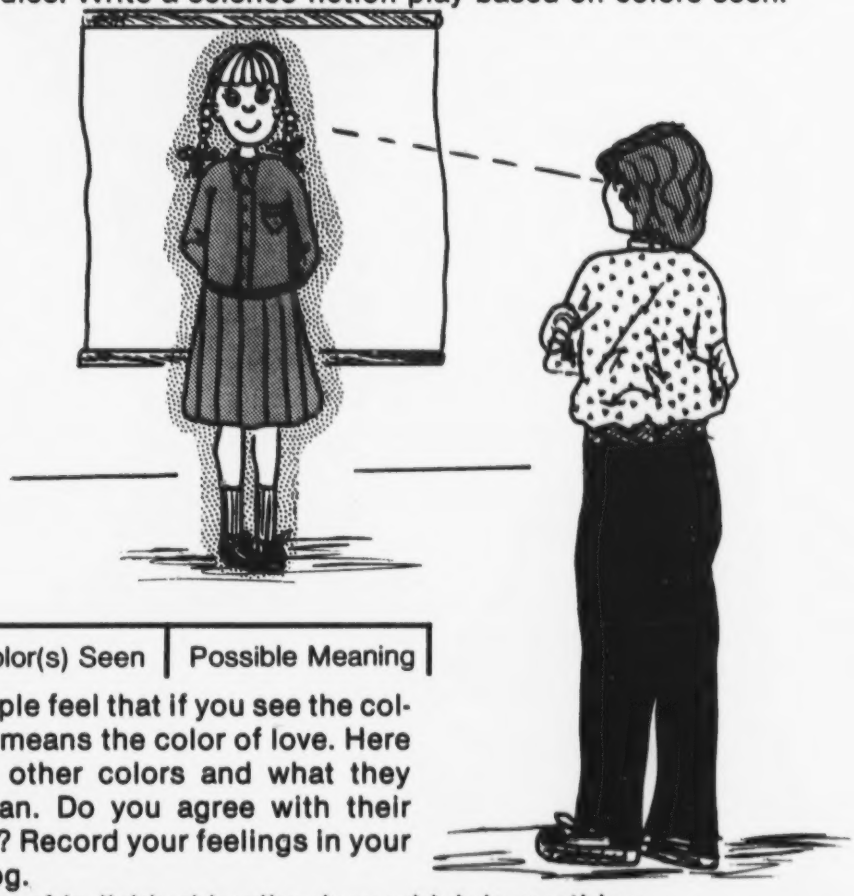
MY ALMANAC OF SMELLS

Smell	Feelings: Agreeable		So-So	Disagreeable		Classification
✓ Honey						Sweet Flower
	1	2	3	4	5	
___ Frying Onions	___	___	___	___	___	___
___ Cloves	___	___	___	___	___	___
___ Vanilla	___	___	___	___	___	___
___ Burned Rubber	___	___	___	___	___	___
___ Swiss Cheese	___	___	___	___	___	___
___ Cigar Smoke	___	___	___	___	___	___
___ Leather	___	___	___	___	___	___
___ Freshly Cut Lawn	___	___	___	___	___	___
___ Coffee	___	___	___	___	___	___
___ Pepper	___	___	___	___	___	___
___ Fresh Tar	___	___	___	___	___	___
___ Freshly Cut Wood	___	___	___	___	___	___
___ Burning Leaves	___	___	___	___	___	___
___ Garlic	___	___	___	___	___	___
___ Skunk	___	___	___	___	___	___
___ Other	___	___	___	___	___	___

Smell Index _____ POINTS

BEYOND THE SENSES...

We are used to exploring the world around us by using our senses. However, what would the world look and feel like if you could go beyond your senses? What would happen if you had laser eyes or could see infrared light and change your sense of color at will? You can start to find out. Obtain a piece of red construction paper. Tape it to white wall or a movie screen. Stare at the paper for 45 seconds. Shift your eyes just to the right of the paper. What do you see? Why? Next, have a friend stand in front of the white wall or screen. Stare slightly above your friend's left shoulder. Record what you see around your friend's body and why you think this happened. Find out about Kirlian photography and its founder SEMYON KIRLIAN. Try other friends. On a separate paper, record your results in a chart that looks like the one below. Then, color in the colors that you saw around your friends' bodies. Write a science fiction play based on colors seen.



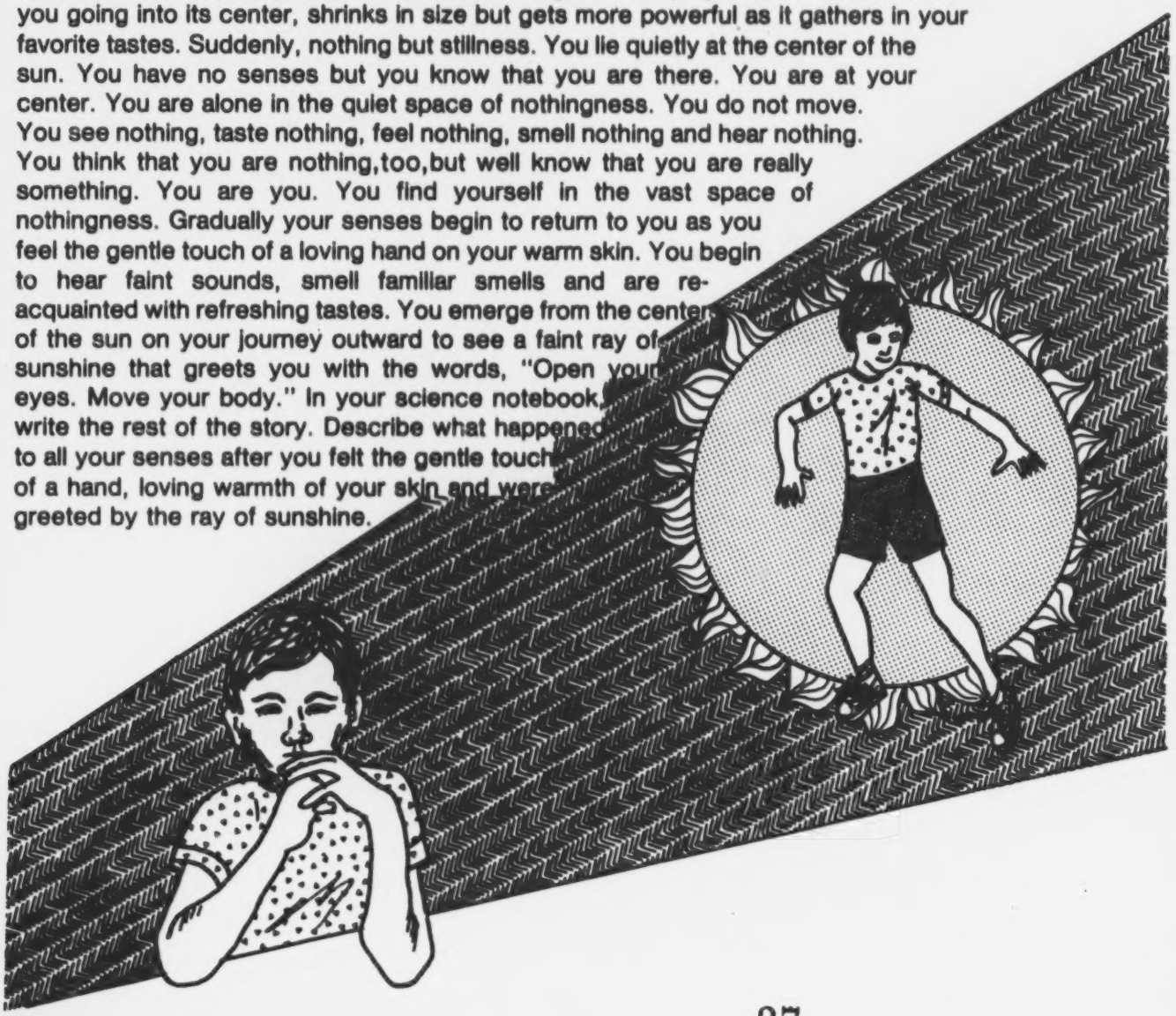
Name	Color(s) Seen	Possible Meaning

Some people feel that if you see the color blue, it means the color of love. Here are some other colors and what they might mean. Do you agree with their meanings? Record your feelings in your science log.

Blue--Color of individual healing love which is soothing
Pink--Color of universal love which is encompassing
Red--Color of inflamed emotion: energy, strength, courage and high vitality
Orange--Color of stabilized emotions, thoughtfulness and consideration
Yellow--Color of health of body and mind, a people lover
Green--Color of newness, continuity of life, peace, abundance and healing
Violet--Color of searching for truth or being spiritual in nature
Purple--Color that shows ability to deal with practical or worldly matters
Gray--Color of persistence, leave no task undone
Brown--Color of growth, effort and wish to accomplish
White--Encompasses all colors and represents a purifying, uplifting vibration
Black--Absence of colors, has heavy or dark influence

SENSITIVE CENTER

For peace to come to the world, one must first be at peace with oneself. You accomplish this when you know that you are more than your senses and body. You can do this when you collect all the energy in your body and place it into a pleasant feeling "sun" at the center of your body. Sit Indian style on a comfortable surface. Have a friend read the following story to you after you have your eyes closed and are relaxed. Tune into your friend's words. "You are taking an imaginary trip into the center of yourself. On your way, you collect all the energy in your body and place it in a pleasant feeling sun located deep inside your body. Suddenly on your journey toward the "sun" you feel that you have never seen anything before because you were born blind. You haven't seen the color of grass, rainbows or even people. In addition to being blind, you feel you have never touched anything or anyone, a feeling that comes from being wrapped inside the sun which lies deep within you. Going further into the center of the sun, you lose your sense of hearing. All sounds are quickly absorbed by the surrounding sun. Being very still, you imagine that you can't smell anything either as the smells are gathered up by the sun. The sun, with you going into its center, shrinks in size but gets more powerful as it gathers in your favorite tastes. Suddenly, nothing but stillness. You lie quietly at the center of the sun. You have no senses but you know that you are there. You are at your center. You are alone in the quiet space of nothingness. You do not move. You see nothing, taste nothing, feel nothing, smell nothing and hear nothing. You think that you are nothing,too,but well know that you are really something. You are you. You find yourself in the vast space of nothingness. Gradually your senses begin to return to you as you feel the gentle touch of a loving hand on your warm skin. You begin to hear faint sounds, smell familiar smells and are re-acquainted with refreshing tastes. You emerge from the center of the sun on your journey outward to see a faint ray of sunshine that greets you with the words, "Open your eyes. Move your body." In your science notebook, write the rest of the story. Describe what happened to all your senses after you felt the gentle touch of a hand, loving warmth of your skin and were greeted by the ray of sunshine.

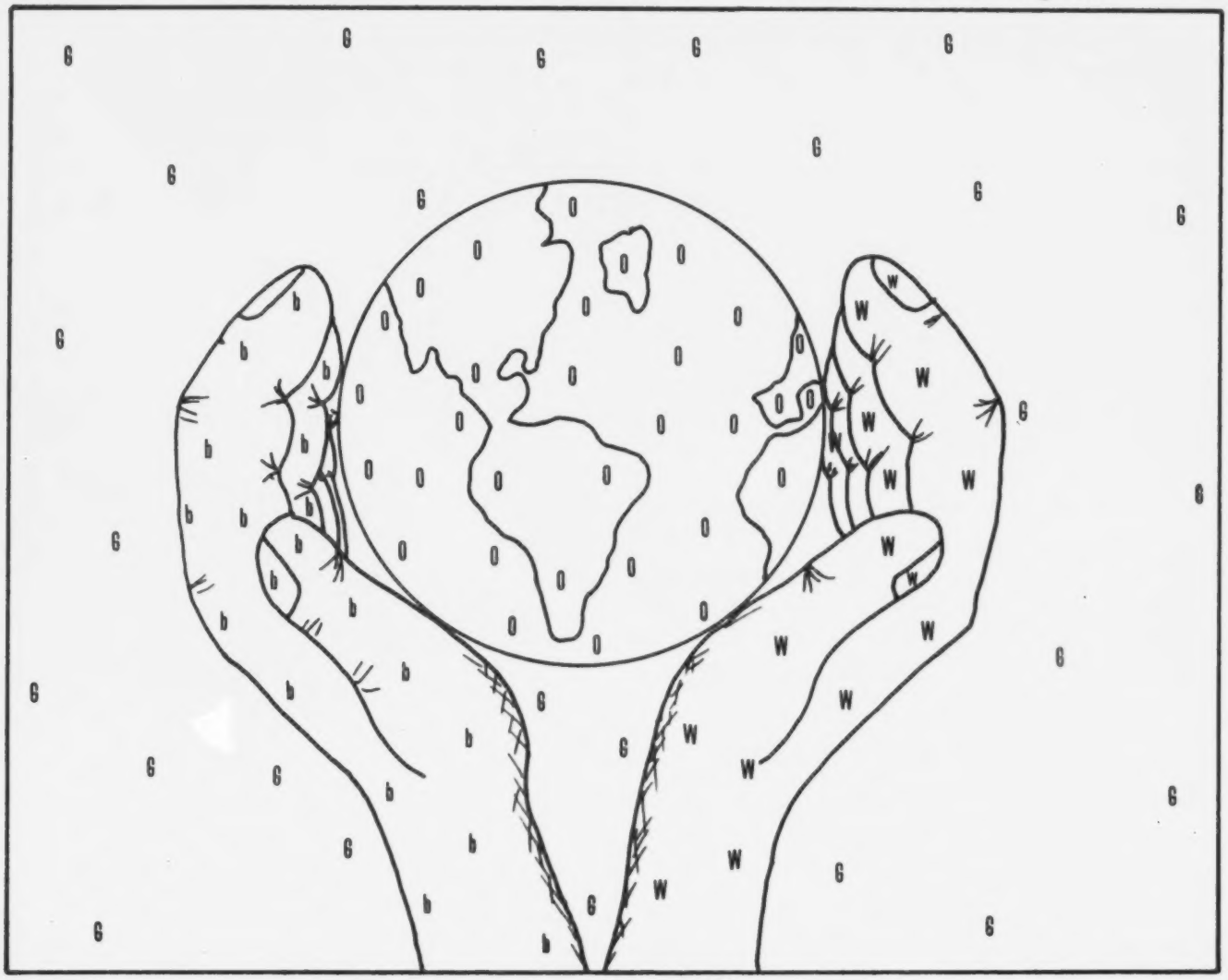


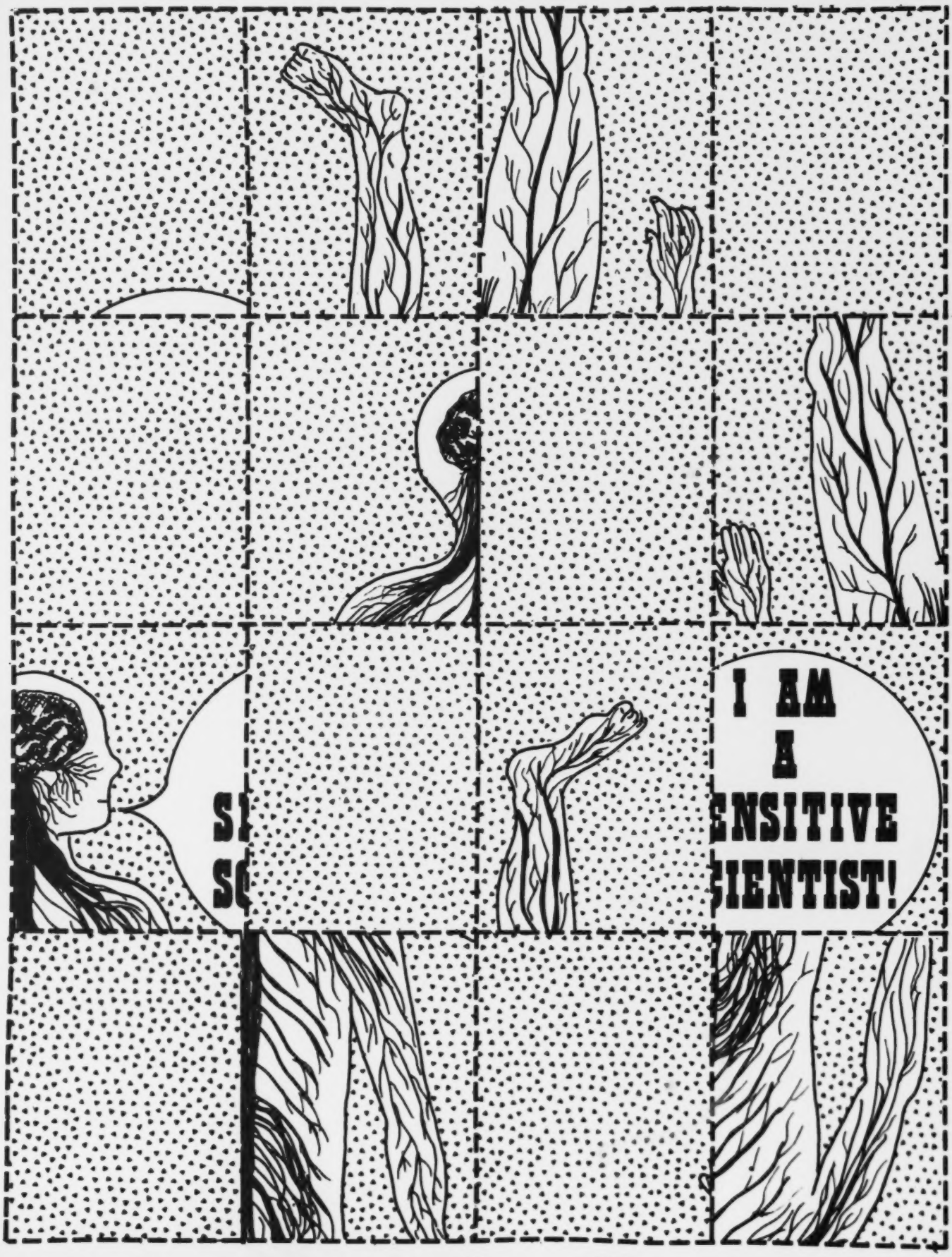
Wanted: A Sensitive World

You can become sensitive to the world around you by first being more sensitive to yourself. With colored pens, markers or crayons, color the "G" areas green, "O" areas orange and "B" areas black in the picture below. Leave the white area white. Place a dot on the globe where you live. Put a white sheet of paper next to your drawing. Stare at the dot for 45 seconds. Shift your eyes to the blank sheet of white paper. What do you see? Does color affect the way you see the world? Try different colors. On a sheet of paper, make a chart like the one below. Record your results. The first set of colors for your first trial is done for you. Your teacher will then read a sensitive story to you.

HOW I VIEW THE WORLD

OBJECT	COLOR BEFORE SEEING	COLOR AFTER SEEING	FEELINGS
World	Orange "O"	Blue	I like the soft, blue world
Left Hand	Black "B"	White	No race has any superiority over any other.
Right Hand	White "W"	Black	No race has any superiority over any other.
Sky	Green "G"	Reddish Pink	I feel the warmth of a rising sun.




I AM
A
ENSITIVE
IENTIST!

TEACHER/PARENT GUIDE
OUR SENSES AND BEYOND

Activity Page Number II

Concept: 5 sense organs and 14 true senses; basic anatomical parts of each sense organ

Materials: pencils, colored pens, one activity sheet per student, reference materials such as *Gray's Anatomy* or a similar human anatomy book

Description: This introductory activity introduces youngsters to the anatomy of the 5 sense organs and develops the concept that there are 14 true senses associated with the 5 sense organs. Have children complete the sentences under each picture. Discuss the 5 major sense organs: eyes, ears, nose, mouth and fingers. Discuss the 14 true senses: sound, touch, black and white, pressure, salt, smell, bitter, heat, balance, color, sweet, cold, pain and sour. After identifying the major parts of each organ have youngsters color in pictures.

Answers: Answers will vary with words or sentences written by youngsters.

ARE YOU A SENSITIVE SCIENTIST?

Activity Page Number 1

Concept: senses are governed by various areas of the brain, career awareness in science, development of self-concept

Materials: scissors, glue, stiff cardboard (8½ X 11 cardboard from back of writing tablets) or tagboard, one activity sheet per student, laminating machine if available, reference materials

Description: Have youngsters cut activity sheet into designated 16 squares. Rearrange puzzle pieces to make complete picture. Glue pieces in place onto cardboard or tagboard. Add student name and school. Color in area of brain responsible for each sensory organ. Laminate. Use as front cover for Student Senses Book. Discuss the function of each area of brain in regulating the sense organs including hemispheric dominance and right-left brain thinking. Tape this front cover to back cover (activity page 27) and use as a folder for pages that make up the complete Student Senses Book. If youngster uses a 3-ring binder, a homemade scented sachet can be placed in the spine of the book under the three rings. Place sachet powder in a rolled tube of cloth. Slide under rings. Attach with adhesive tape. Children enjoy the scent and compliments from friends.

Answers: Completed cover looks like this:

MY SCRAPBOOK OF SENSES

Activity Page Number 2

Concept: 5 major sense organs in the human body

Materials: pencils, magazines, objects or substances that smell, scissors, book of sayings or quotations (*Bartlett's Familiar Quotations*), book of optical illusions (*Experiments in Optical Illusions* by Beeler and Branley), one activity sheet per student

Description: This activity introduces youngsters to the 5 sense organs and offers a permanent record for each sense in scrapbook style. Youngsters learn to combine the 5 sense organs when they write their stories in the last box. Encourage children to use real-life objects when they complete senses pages in their scrapbooks. Add pages for other sense recordings. Identify major sense used in each recording.

Answers: Answers will vary.

FEELING GOOD:
PUT ON A HAPPY FACE!

Activity Page Number 3

Concept: development of positive self-concept; binocular vision

Materials: marking pens, pencil, one activity sheet per student

Description: This activity focuses on the development of a positive self-concept in youngsters in addition to developing a basic understanding of binocular and stereoscopic vision. Discuss positive feelings. Explore basic facial features found in various cultures. Discuss eye-hand coordination used in catching a ball. Teachers may also detect early vision problems in youngsters when doing this activity.

Answers: Answers will vary but drawings to right and left of face, depending on which dot is stared at, should move inside circle when paper is moved closer to nose.

FIVE SENSES PLUS

Activity Page Number 4

Concept: 5 sense organs and 14 true senses, positive self-concept

Materials: lunch or grocery bags, scissors, glue, pens, magazines, one activity sheet per student

Description: This activity teaches the concept of 5 sense organs and 14 true senses. Have youngsters cut out the sense organs and glue them to a paper bag. Youngsters then write the name of the word(s)

that are related to each sense under the corresponding sense organ. Words may be used more than once. Extend activity further into self-concept by having youngsters cut out sense pictures that they are most proud of and would like to share with the class. Glue to outside of bag. Youngsters cut out sense pictures that represent something that they are least proud of and would not like to share with the class. Glue these inside the bag. Discuss reasons why some senses pictures are shared while others are not shared. In addition to self-concept exercises, the senses paper bags make excellent puppets.

Answers: The following words are usually associated with each sense organ:

eyes--black and white, color
ears--sound, balance
nose--smell
tongue and mouth--salt, bitter, sweet, sour
hands and fingers--touch, pressure, heat, cold, pain

COMPUTER SENSE

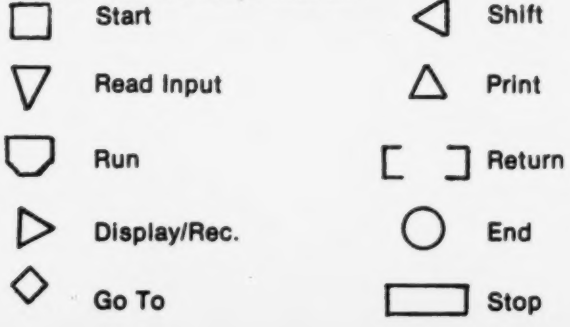
Activity Page Number 5

Concept: sequential nerve stimulation and subsequent motor activity in human body

Materials: scissors, pebble, one activity sheet per student

Description: Youngsters learn how the nervous and muscular systems work together in the human body to produce activity. Drop pebble to floor. Discuss ensuing body action. Have youngsters read story silently. Then, orally read story to youngsters. Fold top half of page under bottom half. Youngsters cut out computer cards from activity sheet. Have youngsters arrange cards in sequence from memory by filling in computer symbol and command in the blanks. If difficulty arises, allow children to reread story to insure proper sequence. Extend activity further by identifying each computer command found on each card. Then, study various computer languages. To prevent loss of computer cards, have youngsters glue cards to discarded computer print-out paper or computer cards obtained from a local company. Library type pockets can be glued to the print-out paper so the child's computer cards, which are glued to regular computer cards, can easily be placed in the pockets to prevent loss of small cards.

Answers: Correct sequence is:



THE POWER OF POSITIVE SEEING

Activity Page Number 6

Concept: development of observational skills and awareness

Materials: pens, pencils, one activity sheet per student

Description: This activity helps youngsters develop powers of observation and awareness. Discuss parts of the eye and the function of each. Compare to camera. Have youngsters color eye. Then, answer the questions. Present each child with an award for successfully completing this activity. Children can then identify other objects that would help them increase their powers of observation and awareness. Make a bulletin board for youngsters to display their works.

Answers:

1. Red, Yellow, Green
2. Upside Down
3. Q, Z
4. Faces left so nose points right
5. Counterclockwise
6. 8
7. 6
8. Right
9. 4
10. "c"
11. Up
12. Clockwise
13. Right

DO YOU SEE WHAT EYE SEE?

Activity Page Number 7

Concept: optical illusions

Materials: pens, pencils and one activity sheet per student

Description: Youngsters develop an awareness of how a person's eyes can sometimes be deceiving. Discuss the term "illusion." Youngsters complete activity sheet. Discuss each illusion. Extend this activity into the field of advertising and how advertisers appeal to one's senses to sell their products. Design advertisements. Then, make an audio or video-taped advertisement for the class. NOTE: Youngsters can prove the lines and bars are parallel in numbers 4 and 6 by holding the paper at eye level and sighting along the lines or bars.

Answers:

1. Y
2. Y
3. Y
4. Y
5. Y
6. Y
7. Y
8. Answers will vary.

EYE CHALLENGE

Activity Page Number 8

Concept: eye dominance

Materials: pencil, clock or post, one activity sheet per student

Description: This activity helps youngsters learn about eye strength. Do several trials with youngsters. Record data from class. Distribute activity sheet. Discuss survey for which each youngster will do the eye dominance test with 6 of his friends. Collect all data. Determine final results for all friends. Represent data with bar graphs and histograms. Find out if handedness is related to eye dominance. Develop a play that depicts a visit to an opthomologist to gather information on eye dominance.

Answers: Answers will vary with results from survey.

GOTCHA!

Activity Page Number 9

Concept: types of fingerprints, uniqueness of individual

Materials: pens, pencils, ink pad, blotter paper, Scotch tape, small piece of felt, one activity sheet per student

Description: This activity introduces youngsters to a person's uniqueness in that no one in the world has exactly the same fingerprints. Discuss 4 major types of fingerprints after youngsters have unscrambled the words and placed their answers in the blanks under the boxes. Students can then touch their fingers to an ink pad and lightly touch the corresponding finger to the paper. Youngsters should label the type of fingerprint on each finger in the drawing. Teachers and parents may wish to gather background information on the SIMIAN CREASE found on the palms of youngsters who may have DOWN SYNDROME. Ink can be easily removed from youngsters' fingers by rubbing with a small piece of felt.

Answers: loop, whorl, arch, composite

MORSE CODE

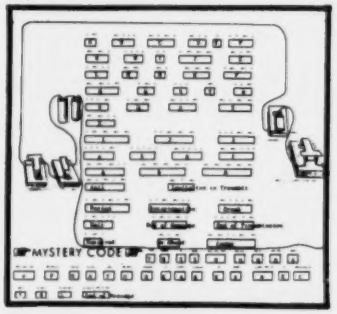
Activity Page Number 10

Concept: use of electronics to extend the senses of seeing, hearing and touching

Materials: pens and pencils, flashlight, encyclopedia, one activity sheet per student

Description: This activity introduces youngsters to the use of electronics in sending messages that extend our basic senses. Discuss the invention of the telegraph by Samuel Morse. Tap out several messages (sound) or send message with flashlight (sight). Have youngsters decipher the mystery code at the bottom of the activity sheet. Discuss how lasers and fiber optics are now used to send messages across great distances.

Answers:



TIPS FOR GOOD LISTENING

Activity Page Number 11

Concept: development of listening skills

Materials: pens and pencils, dictionary, one activity sheet per student, poem entitled *Loveliest of Trees* by R.E. Houseman, tape recorder if available

Description: Introduce listening activity by reading the poem *The Loveliest of Trees* to the class. Tape-record if possible. Have youngsters answer questions about the poem. Replay poem on tape recorder. Answer same questions. Discuss with youngsters how people normally remember the first and last parts of the poem but little of its middle lines. Have youngsters complete the activity by unscrambling the letters to make one word that describes a good listener and one word for a poor listener. Extend activity into exercises that deal with following directions and using sequence activities.

Answers: Good Listener: Active
Poor Listener: Passive

HEARING SPECIAL SOUNDS

Activity Page Number 12

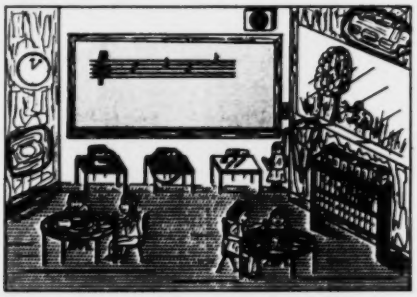
Concept: recognition of sounds

Materials: objects that produce sounds, such as an alarm clock, pens or pencils, one activity sheet per student

Description: This activity sensitizes youngsters to sounds in their immediate environment. Set alarm clock to ring at the beginning of class. Discuss sounds which may be used to call youngsters' attention to school, church and athletic events. Have

youngsters circle hidden objects, place a check mark in front of the word and an X in the blank if they heard that sound today. Extend activity to include a listening walk to identify sounds made by living and nonliving things.

Answers:



EAR LOBES: IN A FIX OR FREE?

Activity Page Number 13

Concept: genetically inherited characteristics

Materials: pens, pencils, one activity sheet per student

Description: This activity introduces youngsters to genetically inherited traits. Discuss "fixed" and "free" ear lobes. Have youngsters identify their types. Give youngsters activity sheets. Youngsters conduct survey of friends and family members. Extend activity further into other traits such as eye and hair color.

Answers: Answers will vary depending on results of surveys.

TASTY TONGUE

Activity Page Number 14

Concept: types of taste buds on tongue and location of each type

Materials: marking pens or crayons, magazines, scissors, glue or tape, pencils, example of sweet, sour, salty and bitter materials, one activity sheet per student

Description: This activity introduces youngsters to taste buds on the tongue that yield tastes of sweet, sour, salty and bitter. Discuss 4 types of tastes using an appropriate example of each. Youngsters color in area of taste buds responsible for each taste and complete sentences below the picture. Have youngsters glue pictures of foods for each taste in appropriate boxes. Extend activity further by reading articles such as "I Am Joe's Stomach" published by *Reader's Digest.*

Answers:

	AREA	TASTE
Part I	A	Sweet
	B	Sour
	C	Salty
	D	Bitter

Part II Answers will vary.

TASTE THE BIG FOUR

Activity Page Number 15

Concept: 4 food groups

Materials: pens or pencils, magazines, one activity sheet per student

Description: This activity introduces youngsters to proper nutrition habits. Discuss the 4 food groups. Have youngsters list the foods that they ate for breakfast. Classify these into 4 groups. On the activity sheet, youngsters can record the type of food eaten for each day of the week and total the number of times per week that the different types of food had been eaten. Youngsters can then plan and illustrate daily menus with foods taken from the 4 basic food groups and design their own place mats that feature such information.

Answers: Answers will vary.

TASTY CALORIES

Activity Page Number 16

Concept: caloric intake

Materials: pens or pencils, reference materials, one activity sheet per student

Description: This activity introduces youngsters to the relationship between number of calories consumed and recommended caloric intake. Discuss various foods and number of calories in each. On the activity sheet, have youngsters list foods eaten for breakfast. Identify the food group and serving size. Determine number of calories for breakfast. Extend activity to include lunch, dinner and snacks. Compare to recommended daily caloric intake levels. Extend activity to include a discussion of the dangers of eating both too much (glutton) or too little (anorexia nervosa) food.

Answers: Answers will vary.

NUTRIENT NUMBERS

Activity Page Number 17

Concept: 6 major nutrients in foods

Materials: pens or pencils, labels from food containers, one activity sheet per student

Description: This activity introduces youngsters to the 6 major elements or nutrients found in all foods: carbohydrates, fats, proteins, minerals, water and vitamins. Introduce activity by having youngsters read labels on containers of various foods. On the activity sheet, have youngsters list the percent or the weight in grams of one nutrient found in 12 different foods at home. Extend activity with a discussion of

the regulators (minerals and vitamins) in our body and what each does to maintain proper health.

Answers:

THE HALL OF SMELLS

Activity Page Number 18

Concept: types of smells

Materials: pens or pencils, one activity sheet per student

Description: This activity can be integrated into a senses walk taken by youngsters in and around the school. Youngsters identify the object and describe the smell and its location. An opportunity is given for students to give their reaction to the smell by drawing the appropriate smile face on the chart. Discuss the seven basic smells: sweet flower, fruit, spicy, musk, strong, foul, and nauseous. Tape-record the youngsters' reactions to each type and play back for the class to share.

Answers: Answers will vary.

SMELLS OF HOME

Activity Page Number 19

Concept: basic smells

Materials: pictures of homes either from magazines or photo albums, pens or pencils, one activity sheet per student

Description: Introduce activity by having youngsters bring in photos of their homes or pictures of homes from magazines. Discuss how homes with their smells have changed throughout history. Youngsters then locate the grid space that contains the object which emits a particular smell after locating the object in the picture. Youngsters can describe that smell, check their reactions and write jokes or riddles entitled "The Smells of Home."

Answers:

Grid Answers

Item	Grid Space(s)
Smoke from chimney	A 3 and 4
Clothes in attic	A 2
Spray _____	B 1
Flowers _____	B, C, 2
Perfume _____	C 3
Toilet in bathroom	C 4
Wastebasket _____	D 4
Flowers	D 4
Auto exhaust	D 1
Garbage can	D 1
Laundry	D 2
Cat	D 3
Animal in Cage	D 3
Food _____	D 4

ALMANAC OF SMELLS

Activity Page Number 20

Concept: 7 basic smells

Materials: samples of objects that smell such as cloves and cheese, pens or pencils, one activity sheet per student, brown wrapping paper for book jackets.

Description: Introduce this activity with an almanac such as *The Old Farmer's Almanac.* Discuss the function of an almanac in particular quotes or sayings that relate to smells. Assign activity sheet after students smell objects that emit the seven basic smells. Youngsters can then find their Smell Index. Extend activity by having youngsters design a book jacket and advertisement for their almanac. NOTE: Youngsters should avoid inhaling vapors directly. Rather, have them wave hand in vapor of strong smell toward face.

Answers: Answers will vary dependent upon individual preference. Here is a sample answer guide.

SMELL	CLASSIFICATION
Honey	Sweet Flower
Frying Onions	Strong
Cloves	Spicy
Vanilla	Sweet Flower
Burned Rubber	Foul
Swiss Cheese	Musk
Cigar Smoke	Nauseous
Leather	Musk
Freshly Cut Lawn	Sweet Flower
Coffee	Spicy
Pepper	Spicy
Fresh Tar	Strong
Freshly Cut Wood	Sweet Flower
Burning Leaves	Strong
Skunk	Nauseous

BEYOND THE SENSES

Activity Page Number 21

Materials: red constuction paper, tape, white wall or movie screen,pens or pencils, colored markers, one activity sheet per student

Concept: extension of senses, heightened awareness, afterimage, auras

Description: This activity extends the senses of youngsters into afterimages and auras. Discuss how some animals have senses that are more developed than humans, e.g., a dog can hear sounds we can't hear, a butterfly sees colors that humans cannot see and insects give off pheromones or scents that can be smelled by other insects miles (kilometers) away. Attach red construction paper to movie screen. Have youngsters stare at construction paper for 45 seconds, then shift their eyes to the right. Youngsters should see afterimage. Using activity sheet, have a youngster stand in front of screen. Stare above left shoulder. Have youngsters describe the color(s) they see. Color these colors on picture. Discuss some tentative meanings or qualities for each color seen. Then, develop a science fiction play based on color seen. For background information on Kirlian photography read *The Kirlian Aura* edited by Stanley Krippner and Daniel Rubin.

Answers: Colors seen will vary with each youngster.

SENSITIVE CENTER

Activity Page Number 22

Concept: sensory awareness

Materials: pens or pencils, friend, one activity sheet per student, writing paper

Description: Discuss sense deprivation with the class. Pair youngsters. Have first member of pair read story to other member of pair. Reverse roles. Youngsters then complete story by writing about their experience. This can also be done effectively with the teacher or parent(s) reading the story to the youngsters. Consult *Meditating with Children* by Deborah Rozman for background information and extending activities.

Answers: Answers will vary with students' stories

WANTED: A SENSITIVE WORLD

Activity Page Number 23

Concept: afterimages, sensitivity, awareness

Materials: colored felt-tipped markers, white typing paper, one activity sheet per student

Description: Discuss the importance of sensitivity to oneself, others and the world. Youngsters color in appropriately marked areas and place a black dot on the globe that represents the location where they live. Stare at dot. Shift eyes to white paper. Discuss afterimages and colors related to each and what these colors may mean. Have youngsters try different colors that result in different colored afterimages and meanings. Discuss how color affects one's views of the world relative to personality changes and feelings.

Read the following story to the youngsters. Discuss the importance of an individual in making the world a better place in which to live.

THE WEIGHT OF NOTHING

"Tell me the weight of a snowflake," a sparrow asked a wild dove.

"Nothing more than nothing," was the answer.

"In that case I must tell you a marvelous story," the sparrow said. "I sat on the branch of a fir, close to its trunk, when it began to snow, not heavily, not in a raging blizzard, no, just like in a dream, without any violence. Since I didn't have anything better to do, I counted the snowflakes settling on the twigs and needles of my branch. Their number was exactly 3,741,952. When the next snowflake dropped onto the branch--nothing more than nothing, as you say--the branch broke off."

Having said that, the sparrow flew away.

The dove, since Noah's time an authority on the matter, thought about the story for awhile and finally said to herself: "Perhaps there is only one person's voice lacking for peace to come about in the world."

from *A Race to Nowhere*
by Pax Christi--U.S.A

Answers:

Before	After
World--Orange--"O"	Blue
Left Hand--Black--"B"	White
Right Hand--White--"W"	Black
Sky--Green--"G"	Reddish Pink

Feelings

Answers will vary.	Answers will vary.
Answers will vary.	Answers will vary.

I AM A SENSITIVE SCIENTIST

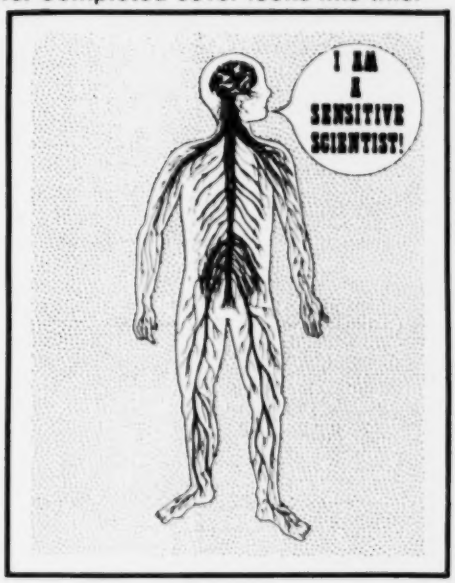
Activity Page Number 24

Concept: nervous system, career awareness in science, development of self-concept

Materials: scissors, glue, stiff cardboard (8½" x 11" cardboard from back of writing tablets) or tagboard, one activity sheet per student, laminating machine if available, reference materials

Description: Have youngster cut activity sheet into designated 16 squares. Rearrange puzzle pieces to make complete picture. Glue pieces in place onto cardboard/tagboard. Color nerves. Laminate. Use as back cover for Student Senses Book. Discuss the role of the nervous system in the human body. Tape back cover to front cover (activity page number 1) and use as a folder for pages that make up Student Senses Book. Discuss careers of well-known scientists and how they were sensitive to themselves, others and the world around them.

Answers: Completed cover looks like this:



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